

V10 THERMOSTATIC SHOWER VALVE

PRODUCT MANUAL

IMPORTANT

Installer: This Manual is the property of the customer and must be retained with the product for maintenance and operational purposes.

CONTENTS

Introduction	3
Patents and Design Registration	3
Safety : Warnings	4
Pack Contents	6
Rada V10 Exposed Shower Valve	6
Rada V10 Concealed Shower Valve	7
Rada V10 Contract Pack	8
Dimensions	9
Specifications	10
Pressures	10
Flow Rate	10
Temperatures	10
Thermostatic Shut-down	10
Connections	10
Installation	11
Suitable Plumbing Systems.....	11
General.....	11
Valve Combinations.....	12
Rada V10 Exposed	13
Rada V10 Concealed	15
Flow Regulators	18
V10 Contract Pack (Adjustable Elbows).....	19
Operation	19
Commissioning	20
Maximum Temperature Setting	20
Type 2 Valves	21
Maintenance	23
Fault Diagnosis.....	23
Lubricants.....	23
Cleaning	23
In-service Tests.....	23
Routine Maintenance	23
Filter cleaning/change	23
Spare Parts	25
Accessories	27

INTRODUCTION

Thank you for purchasing a quality Rada product. To enjoy the full potential of your new product, please take time to read this guide thoroughly, having done so, keep it handy for future reference.

The Rada V10 is a thermostatic shower valve with a single control lever for on/off and temperature control.

The Rada V10 incorporates a wax capsule temperature sensing unit which provides an almost immediate response to changes in pressures or temperature of the incoming water supplies to maintain the selected temperature. An adjustable maximum temperature stop is provided which limits the temperature to a safe level. Inlet filters are fitted to protect the thermostatic cartridge.

This product has been certified as a Type 2 valves under the BUILDCERT TMV2 scheme. It also comply with the Water Supply (water fittings) Regulations 1999.

Products Included In this Manual

1.1651.004	Rada V10 Exposed Mixer
1.1651.005	Rada V10 Concealed Mixer
1.1651.008	Rada V10 Contract Pack

Patents and Design Registration

Patents:	GB: 2 291 693, 2 340 210, 2 392 225, 2 421 297 Euro: 1 672 257 DE, FR, GB, IT, NL, SE USA: 7 240 850
Patent Applications:	Euro: 03254070.0 USA: 2006-0124758-A1, 2007-0221740-A1

If you experience any difficulty with the installation or operation of your new Thermostatic Mixer, please refer to '**Fault Diagnosis**', before contacting Kohler Mira Ltd. Our telephone and fax numbers can be found on the back cover of this guide.

SAFETY : WARNINGS

Rada thermostatic mixers are precision engineered and should give continued safe and controlled performance, provided:

1. They are installed, commissioned, operated and maintained in accordance with manufacturer's recommendations.
2. Do not install the product in a position in which service access is restricted.
3. Make sure that you fully understand how to operate this shower and make sure that it is properly maintained in accordance with the instructions given in this manual.
4. Type 2 Valves are only used for applications covered by their approved designations, refer to section: '**Type 2 Valves**'.
5. Periodic attention is given, when necessary, to maintain the product in good functional order.

Caution!

1. **Read all of these instructions and retain this guide for later use.**
2. Make sure that this guide is left with the user. Pass on this guide in the event of change of ownership of the installation site.
3. Follow all warnings, cautions and instructions contained in this guide, and on or inside the shower.
4. Installation must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.
5. The plumbing installation must comply with the requirements of UK Water Regulations/Bye-laws (Scotland), Building Regulations or any particular regulations and practices, specified by the local water company or water undertakers. The installation should be carried out by a plumber or contractor who is registered, or is a member of, an association such as:
 - Institute of Plumbing (IOP), throughout the UK
 - National Association of Plumbing, Heating and Mechanical Services Contractors (NAPH & MSC), England and Wales
 - Scottish and Northern Ireland Plumbing Employers' Federation (SNIPEF), Scotland and Northern Ireland
6. Care is required when adjusting flow or temperature, make sure that the temperature has stabilised.
7. Rapid movement of the flow and/or temperature control levers may result in momentary unstable blend temperatures.
8. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety.
9. Anyone who suffers from a medical condition that can result in temporary incapacity (e.g. epilepsy or blackouts).
10. Children should be supervised to make sure that they do not play with the appliance.
11. The British Burns Association recommends 37 to 37.5°C as a comfortable bathing temperature for children. In premises covered by the Care Standards Act 2000, the maximum mixed water outlet temperature is 43°C.

12. Sunburn or skin conditions can increase your sensitivity to hot water. Make sure that you set the shower to a cooler temperature.
13. If the shower is dismantled during installation or servicing then upon completion the product must be inspected to ensure there are no leaks.
14. **DO NOT** operate this appliance if water leaks from this appliance.
15. **DO NOT** operate this appliance if it is frozen. Allow the appliance to thaw before using. The shower unit must not be fitted where it may be exposed to freezing conditions.
16. Make sure that any pipework that could become frozen is properly insulated.
17. If pipework and/or electrical cables enter the shower from the rear through a hole in the wall . Provision must be made to prevent water ingress back into the wall structure.
18. The water supplies to this product must be isolated if the product is not to be used for a long period of time. If the product or pipework is at risk of freezing during this period they should also be drained of water.
19. The shower head must be de-scaled regularly. Lack of regular shower head cleaning will lead to poor performance and cause early failure of the appliance. Refer to the Shower Fittings User Guide for more information.
20. Make sure that you fully understand how to operate this shower and make sure that it is properly maintained in accordance with the instructions given in this manual.
21. Having completed the installation, make sure that the user is familiar with the operation of the appliance.
22. When this appliance has reached the end of its serviceable life, it should be disposed of in a safe manner, in accordance with current local authority recycling, or waste disposal policy.

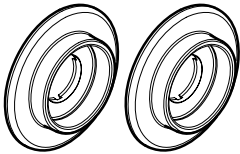
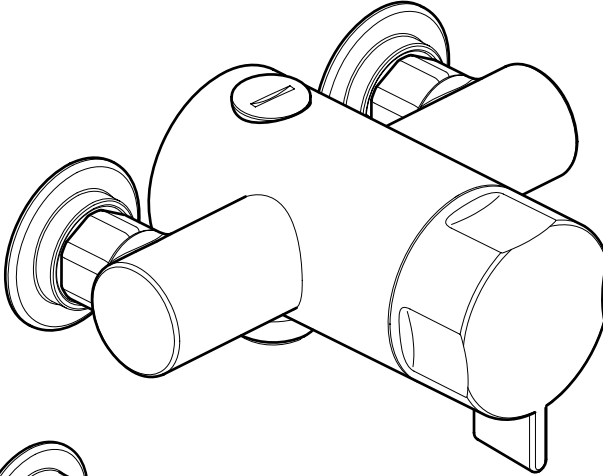
PACK CONTENTS



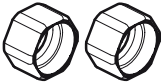
Tick the appropriate boxes to familiarize yourself with the part names and to confirm that the parts are included.

Rada V10 Exposed Shower Valve

1 x Rada V10 Exposed Shower Valve



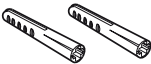
2 x Concealing Plates



2 x Compression Nuts



2 x Olives



2 x Wall Plugs



2 x Fixing Screws



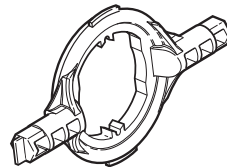
1 x 2.5 mm Hexagonal Key



1 x Flow Regulator 6 l/min

1 x Flow Regulator 9 l/min

(refer to section: '**Flow Regulators**')



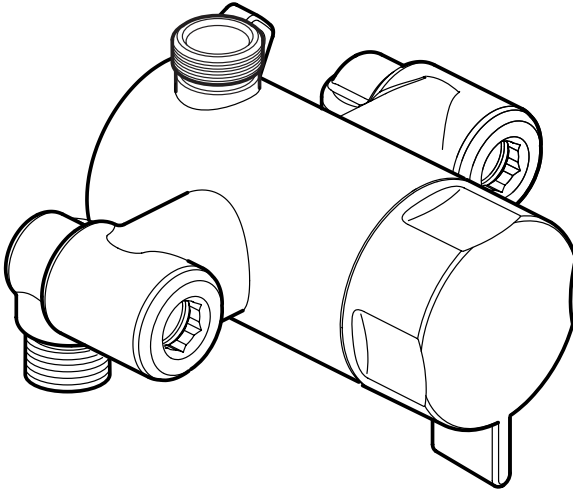
1 x 'O' Key

Documentation

1 x Installation Template

Rada V10 Concealed Shower Valve

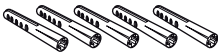
❑ 1 x Rada V10 Concealed Shower Valve



❑ 3 x Compression Nuts



❑ 3 x Olives



❑ 5 x Wall Plugs



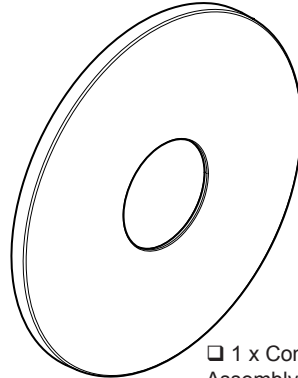
❑ 5 x Fixing Screws



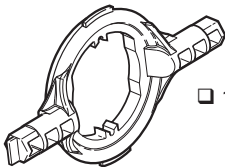
❑ 1 x 2.5 mm
Hexagonal Key



❑ 1 x Flow Regulator 6 l/min
❑ 1 x Flow Regulator 9 l/min
(refer to section: '**Flow Regulators**')



❑ 1 x Concealing Plate
Assembly



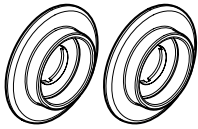
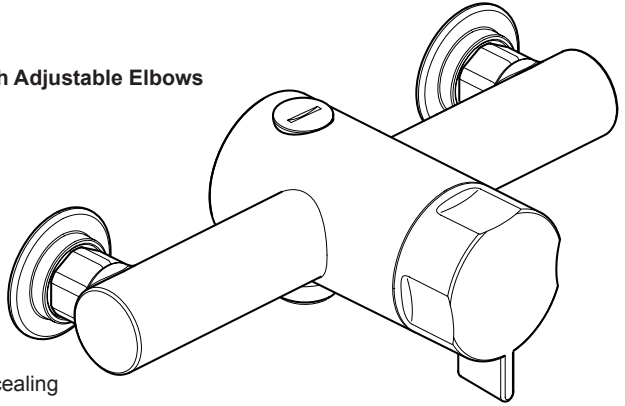
❑ 1 x 'O' Key

Documentation

❑ 1 x Cardboard Building-in Shroud

Rada V10 Contract Pack

❑ 1 x Rada V10 Shower Valve with Adjustable Elbows



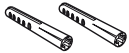
❑ 2 x Concealing Plates



❑ 3 x Compression Nuts



❑ 3 x Olives



❑ 2 x Wall Plugs



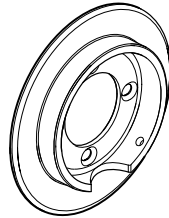
❑ 2 x Fixing Screws



❑ 1 x 2.5 mm Hexagonal Key

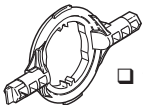
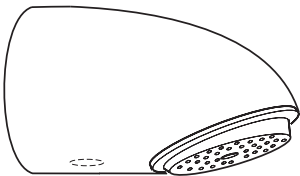


❑ 1 x Flow Regulator 6 l/min
 ❑ 1 x Flow Regulator 9 l/min
 (refer to section: 'Flow Regulators')



❑ 1 x Adjustable Backplate

❑ 1 x VR145 Showerhead



❑ 1 x 'O' Key



❑ 1 x 2.5 mm Hexagonal Key



❑ 1 x 3 mm Hexagonal Key



❑ 2 x Wall Plugs



❑ 2 x Fixing Screws



❑ 1 x 'O' Seal

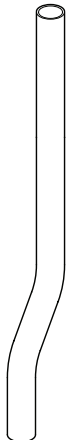


❑ 1 x Hole Plug

Documentation

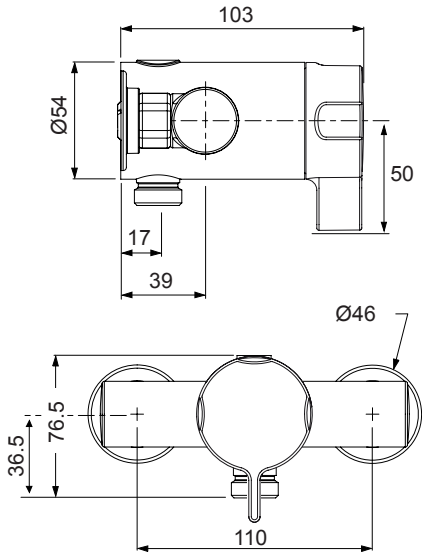
❑ 1 x Installation Template

❑ 1 x Rigid Riser

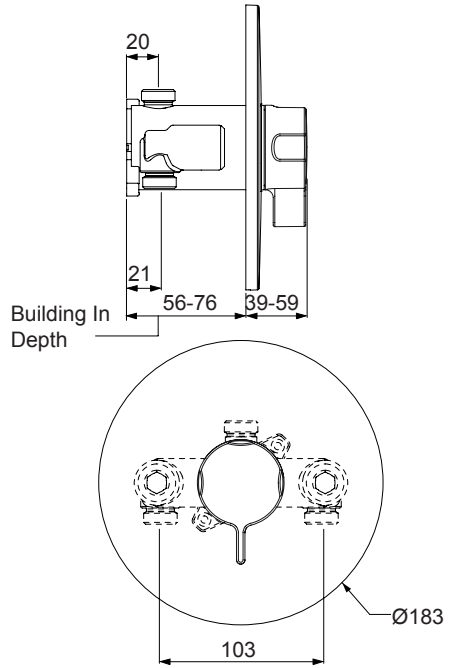


DIMENSIONS

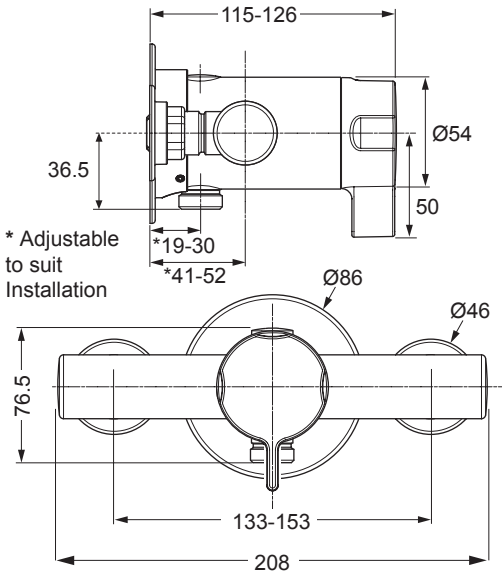
Rada V10 Exposed Shower Valve



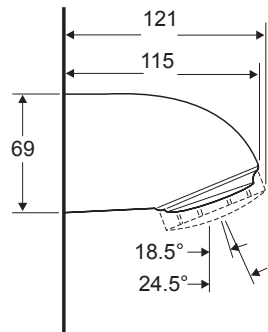
Rada V10 Concealed Shower Valve



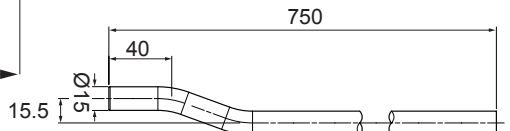
Rada V10 Contract Pack



* Adjustable to suit Installation



All dimensions in mm



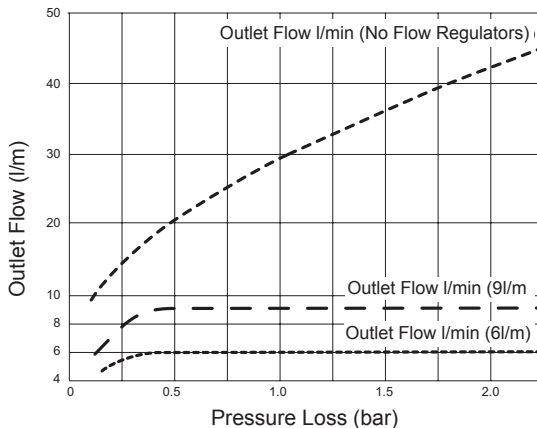
SPECIFICATIONS

For Type 2 Valves, the supply conditions specified in section: 'Type 2 Valves - Application' take precedence over the operating parameters which follow.

Pressures

- Max Static Pressure: **10 Bar**.
- Max Maintained Pressure: **5 Bar**.
- Min Maintained Pressure (Gravity System): **0.1 Bar** (0.1 bar = 1 Metre head from cold tank base to showerhead outlet).
Note! For gravity fed or other low pressure systems (0.5 bar or below) do not fit the outlet flow regulator (where applicable).
- For optimum performance supplies should be nominally equal.

Flow Rate



Minimum flow rate: 3 l/min
Maximum flow rate: 30 l/min

Note! Minimum flow rate for VR145 Showerhead is 6 l/min to achieve a full spray pattern

Temperatures

- Factory Pre-set (Blend) Shower: **41°C**.
- Optimum Thermostatic Control Range: **35°C to 45°C** (achieved with supplies of 15°C cold, 65°C hot and nominally equal pressures).
- Recommended Hot Supply: **60°C to 65°C** **Note!** The mixing valve can operate at higher temperatures up to 85°C for short periods without damage, however this could detrimentally affect thermostatic performance. For safety and performance reasons it is recommended that the maximum hot water temperature is limited to 65°C.
- Cold Water Range: up to **25°C**.
- Minimum Recommended Differential between Hot Supply and Outlet Temperature: **12°C**.

Thermostatic Shut-down

- For safety and comfort the thermostat will shut off the mixing valve **within 2 Seconds** if either supply fails (achieved only if the blend temperature has a minimum differential of 12°C from either supply temperature).

Connections

- Inlets: 15 mm Compression.
- Outlet: ½" BSP Flat Face / 15 mm Compression.
- Standard connections are: **hot - left, cold - right, outlet - bottom**. (Exposed) **outlet top**, (Concealed) (refer to page 14 for 'Reversed Inlet' connections).

INSTALLATION

Suitable Plumbing Systems

Gravity Fed:

The thermostatic mixer must be fed from a cold water cistern (usually located in the loft space) and a hot water cylinder (usually located in the airing cupboard) providing nominally equal pressures.

Mains Pressurised Instantaneous Hot Water System (Combination Boiler):

The thermostatic mixer can be installed with systems of this type with balanced pressures. (Recommended Minimum Maintained Pressure: **1.0 Bar**).

Note! On combination boiler systems we recommend that the thermostatic mixer is operated in the maximum flow position in order to achieve the minimum flow rate required to ignite and run the boiler.

Unvented Mains Pressure System:

The thermostatic mixer can be installed with an unvented, stored hot water system.

Pumped System:

The thermostatic mixer can be installed with an inlet pump (twin impeller). The pump must be installed in a suitable location and in accordance with its instructions.

General

Installation must be carried out in accordance with these instructions, and must be conducted by designated, qualified and competent personnel.

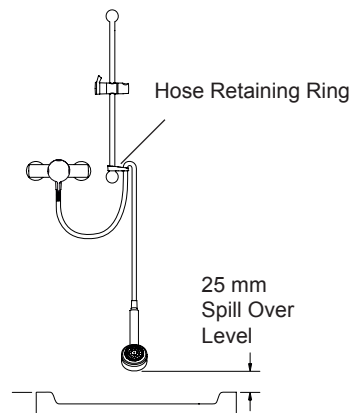
The plumbing installation must comply with the requirements of UK Water Regulations/ Bye-laws (Scotland), Building or any particular regulations and practices, specified by the local water company or water undertakers.

Note! Make sure that all site requirements correspond to the information given in section: '**Specifications**'. For Type 2 Valves see also supply conditions in section: '**Type 2 Valves**'.

1. The Mixer must not be installed in an area where it may freeze.
2. For stud partitions alternative fixings may be required.
3. Isolating valves **must** be installed close to the Mixer for ease of maintenance.
4. Pipework must be rigidly supported and avoid any strain on the connections.
5. Pipework dead-legs should be kept to a minimum.
6. Decide on a suitable position for the Mixer. The position of the Mixer and the Shower Fittings must provide a minimum gap of 25 mm between the spill-over level of the shower tray/bath and the showerhead (refer to illustration). This is to prevent back-siphonage. For further information on the installation of your **Shower Fittings**, refer to the Fittings Installation and User Guide.

Note! Only use Shower Fittings recommended by the manufacturer or supplier.

Note! The thermostatic mixing valve will be installed in such a position that maintenance of the TMV and its valves and the commissioning and testing of the TMV can be undertaken.



Valve Combinations

These thermostatic mixers are available with various shower fittings and water saving features, refer to the table below to identify your mixer valve combination:

Flow regulators are supplied for installation on high pressure systems (above 0.5 bar). For gravity fed or other low pressure systems do not fit the flow regulator.

Mixer Valve	Shower Fittings	Flow Regulator		
		Flow Rate	Colour	Comments
Rada V10 Exposed	L14A	6 L/Min	Black	Supplied in the component pack, designed to be fitted in the shower valve outlet
		9 L/Min	Orange	
Rada V10 Concealed	L14A	6 L/Min	Black	Supplied in the component pack, designed to be fitted in the RAC assembly
		9 L/Min	Orange	
Rada V10 Contract Pack	VR145	6 L/Min	Black	A 9 l/min flow regulator is pre-fitted inside the VR145 showerhead. For additional water saving remove the 9 l/min regulator (refer to the VR Product Manual) before fitting the 6 l/min flow regulator in the valve outlet.
		9 L/Min	Orange	

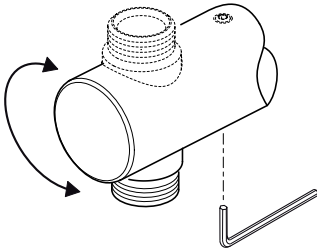
For further information on how and where to fit the flow regulator, refer to section: **'Flow Regulators'** page 18.

Rada V10 Exposed

For Built-in version Mixers go to section: 'Installation, Rada Built-in'.

1. The thermostatic mixer can be installed with rear, rising or falling supply inlets. Decide on the most appropriate method for your installation, and if necessary, loosen the grub screws and rotate the inlet elbows to suit.

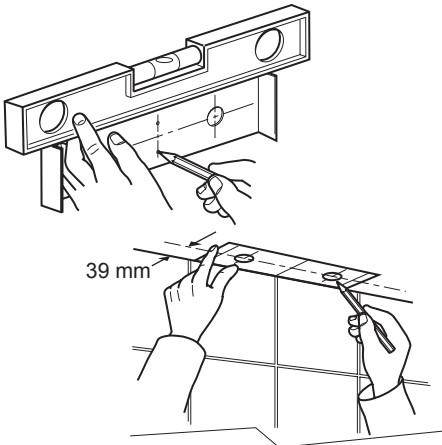
Important! Make sure that the elbows are pushed fully onto the mixer before tightening the grub screws, **do not** overtighten.



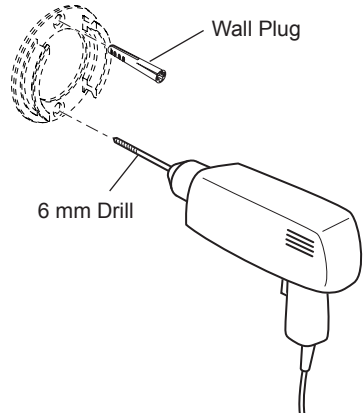
2. Use the installation template to mark the positions of the holes for the backplate and the pipe centres.

For rising or falling supplies the pipe positions should be set 39 mm from the centre of pipe to the finished wall at 110 mm centres.

Note! If you are retro-fitting your mixing valve onto existing pipework, an **Adjustable Elbow Pack** is available if required, refer to section: 'Accessories'.



3. For solid walls drill the holes for the backplate with a 6 mm drill and insert the wall plugs (supplied). For other types of wall structure alternative fixings may be required (not supplied).



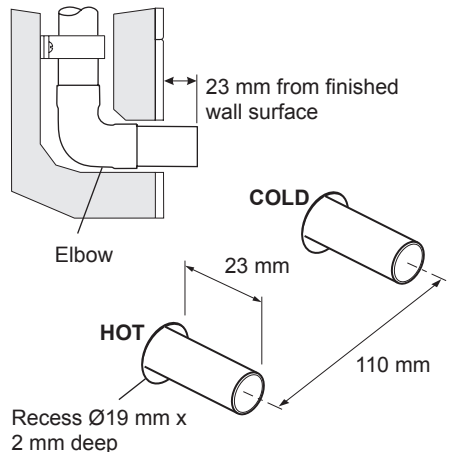
4. For Rear Entry Supplies Only:

- a) Drill the holes for the supply pipes at 110 mm centres.

Note! Recess the inlet holes $\text{Ø}19 \text{ mm} \times 2 \text{ mm}$ deep to allow for the concealing plates.

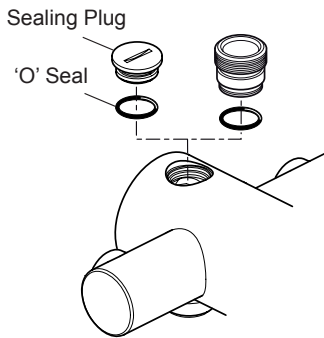
5. Fit the supply pipework: **Hot - Left, Cold - Right**. The inlet pipework should extend 23 mm from the finished wall surface.

Note! If it is not possible to install the mixer with this pipework configuration follow instruction 6.

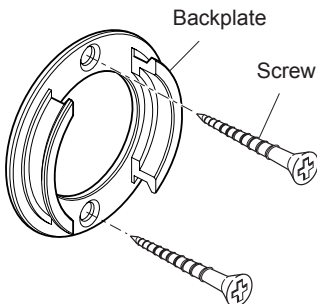


6. Reversed Inlet Supplies Only:

- Remove the sealing plug using the 'O' key (supplied).
- Unscrew the outlet nipple using the 'O' key (supplied) or a 12 mm hexagonal key.
- Refit the sealing plug and outlet nipple in the opposite outlets and tighten.
Note! Make sure that the 'O' seals are correctly fitted.
- Rotate the mixer 180°.
- The control knob(s) will have to be realigned, this can be completed in section: 'Commissioning'.

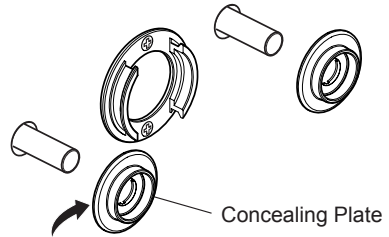


- Remove the backplate from the mixer by loosening the grub screw with a 2.5 mm hexagonal key (supplied).
- Secure the backplate to the wall using the screws (supplied).



9. For Rear Entry Supplies Only:

- Fit the concealing plates over the inlet pipes.
Note! Apply silicone sealant to the back face of the flange.



Apply Silicone Sealant

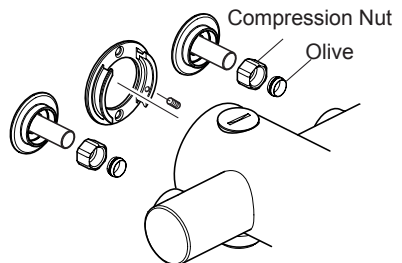
10. Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer. Failure to do so may result in product malfunction and will not be covered under the guarantee.

- Fit the compression nuts and olives onto the pipework.
- Align the mixer with the pipework and fit onto the backplate.

Important! Make sure that the hot and cold inlets on the mixer correspond with the hot and cold inlet supplies.

- Tighten the compression nuts onto the mixer with a suitable spanner.
Caution! Take care not to damage the chrome surfaces.

- Tighten the grub screw to secure the mixer to the backplate.



- Fit the shower fittings, refer to your shower fittings installation and user guide for instructions.

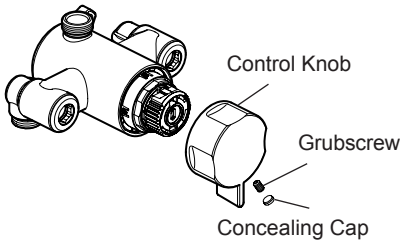
Important! For high pressure systems (above 0.5 bar) make sure that the flow regulator (supplied) is fitted, refer to section: 'Flow Regulators'.

- Turn on the hot and cold water supplies and check for leaks.
- Before using the shower, refer to section: 'Commissioning'.

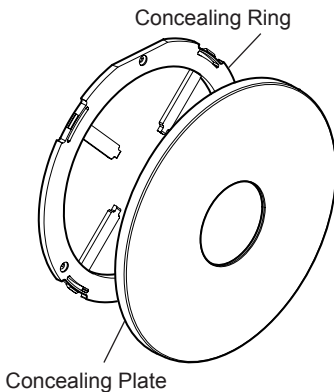
Rada V10 Concealed

1. Carefully remove the concealing cap from the control knob.
2. Unscrew the grubscrew using a 2.5 mm hexagonal key (supplied) and pull off the control knob(s).

Note! The flow control knob must be in the off position in order to remove it.

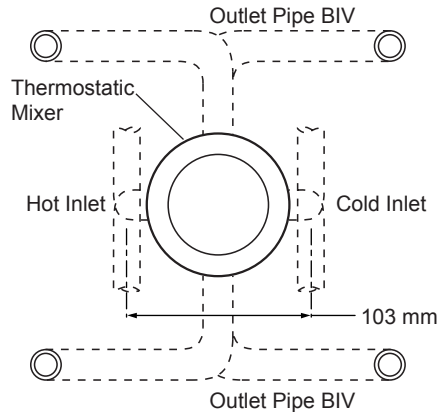


3. Carefully remove the concealing ring from the concealing plate.



4. Determine the route for the hot and cold supply pipework and for the outlet pipework. When connecting to the BIV shower fittings it is recommended that the outlet be positioned to one side of the mixer. This is to prevent the flexible hose from obstructing the shower controls (refer to illustration).

Alternative Pipe layouts



5. Mark the routes for the hot and cold supply pipework at 103 mm centres (**Hot - Left, Cold - Right**).

Note! If it is not possible to install the mixer with this pipework configuration follow instruction 6.

Falling Supplies: For falling supplies loosen the grubscrew on each elbow using the 2.5 mm hexagon key (supplied). Remove the elbows and install on opposite sides.

Important! Make sure that the elbows are pushed fully onto the mixer before tightening the grubscrews, **do not** overtighten.

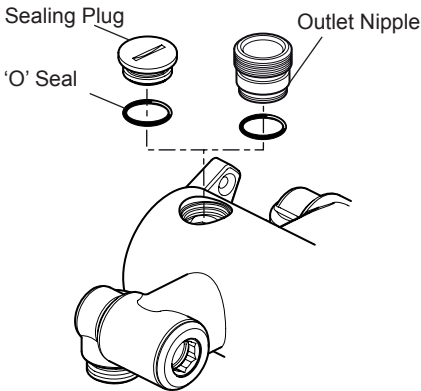
6. Reversed Inlet Supplies Only:

- Remove the sealing plug using the 'O' key (supplied) or a 12 mm hexagonal key.
- Remove the outlet nipple using the 'O' key (supplied) or a 12 mm hexagonal key.
- Refit the sealing plug and outlet nipple in the opposite outlets and tighten.

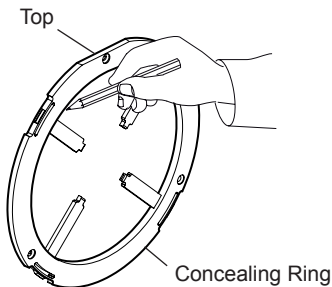
Note! Make sure that the 'O' seals are correctly fitted.

- Rotate the mixer 180°.
- If necessary, loosen the grub screw on each elbow using the 2.5 mm hexagon key (supplied). Remove the elbows and install on opposite sides. Retighten the grub screws.

Important! Make sure that the elbows are pushed fully onto the mixer before tightening the grub screws.

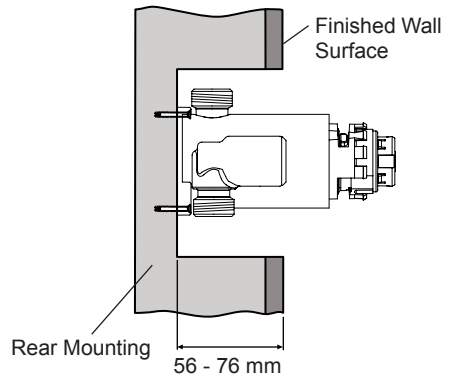


- Determine the position of the mixer and draw around the **inside** of the concealing ring.

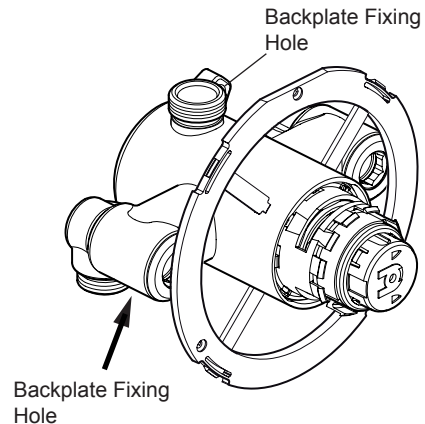


- Carefully cut away the plasterboard and/or brick work to a depth of between 56 and 76 mm from the **finished wall surface**.

Important! Take care to stay within the marked out diameter otherwise the concealing ring will not seal.



- Fit the concealing ring over the mixer body, then, holding the mixer level, central and square in the hole, mark the positions of the two backplate fixing holes on the wall.



- For solid walls drill two 6 mm holes for the wall plugs. For other types of wall structure alternative fixings may be required (not supplied).

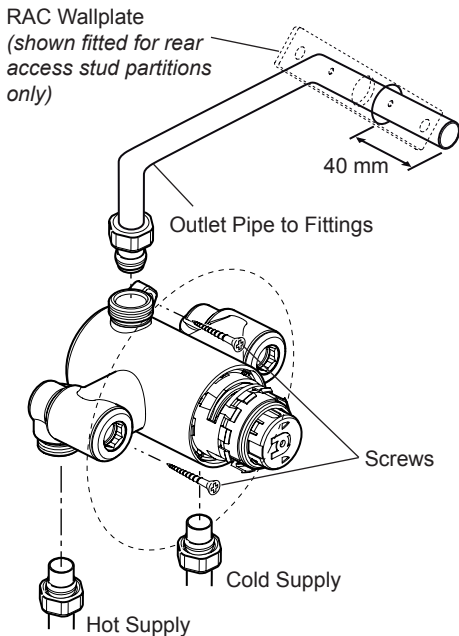
- Caution! It is essential at this point that the supply pipework is thoroughly flushed through before connection to the mixer.** Failure to do so may result in product malfunction and will not be covered under the guarantee.

12. Insert the wall plugs (supplied) and attach the mixer to the wall or to the timber noggin with the screws provided.
13. Fit the compression nuts and olives onto the pipework, connect the pipes and tighten the compression nuts.

Important! Make sure that the outlet pipework protrudes through a $\text{\O}25$ mm hole in the wall or stud partition by approximately 40 mm and temporarily cap off.

Note! For stud partition installations where access to the rear of the partition is possible, fit the RAC wallplate over the outlet pipework on the inside of the partition.

For stud partition installations where access to the rear of the wall is not possible, follow instructions for solid wall installations, making sure that suitable wall fixings (not supplied) are used to secure the wallplate to the outside of the stud partition.



14. Turn on the water supplies and check for leaks.
15. Determine the finished wall position (e.g. tile thickness). Turn off the water supply, carefully uncap the outlet pipe and cut to length, the outlet pipe must protrude through the **finished wall Exposed** by 21–23 mm.
Note! Remove any burrs from the pipes before proceeding.

16. For solid wall installations or stud partition installations **without** rear access go to instruction 21.

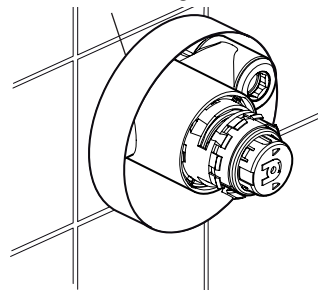
For stud partition installations with access to the rear of the partition continue with instruction 17.

17. Finish the wall (e.g. tiles).

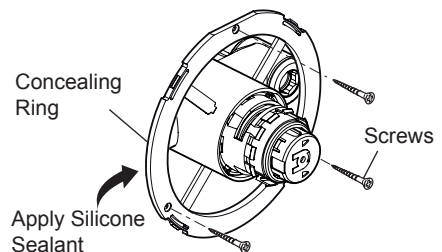
Important! Make sure that you use the cardboard building-in shroud when finishing the wall. This will protect the valve and make sure that you tile up to the correct diameter.

Caution! Make sure that the finished wall is within the maximum and minimum limits and to an even depth (no greater than 2 mm variation) or the controls will not fit correctly.

Cardboard Building-in Shroud



18. Fit the concealing ring over the mixer and mark the positions of the three fixing holes.
19. For solid walls drill three 6 mm holes for the wall plugs. For other types of wall structure alternative fixings may be required (not supplied).
Caution! Make sure that you do not drill into pipework in the wall.
20. Insert the wall plugs (supplied) and attach the concealing ring to the wall with the screws provided.
Important! Apply silicone sealant to the groove on the rear face of the concealing ring



21. Fit the concealing plate to the concealing ring.
22. Refit the control knobs.
23. Fit the shower fittings, refer to your shower fittings installation and user guide for instructions.

Important! For high pressure systems (above 0.5 bar) make sure that the flow regulator (supplied) is fitted, refer to section: '**Flow regulators**'.
24. Turn on the hot and cold water supplies and check for leaks.
25. Before using the shower, refer to section: '**Commissioning**'.

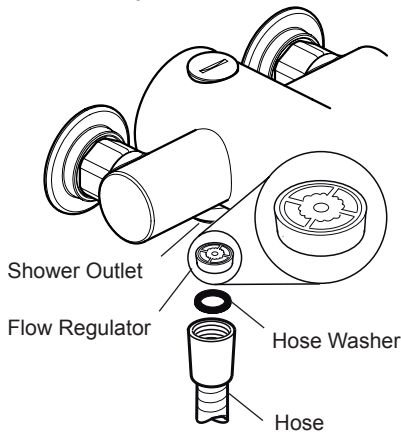
Flow Regulators

These thermostatic mixers are available with various shower fittings and water saving features, therefore the position and type of flow regulator will vary by model.

For high pressure systems (above 0.5 bar), identify your model and install the flow regulator as illustrated (where appropriate). For gravity fed or other low pressure systems do not fit the flow regulator.

Important! The fitting of any flow regulator will invalidate TMV2 compliance due to the minimum flow rate requirements. Do not fit flow regulators in TMV2 applications.

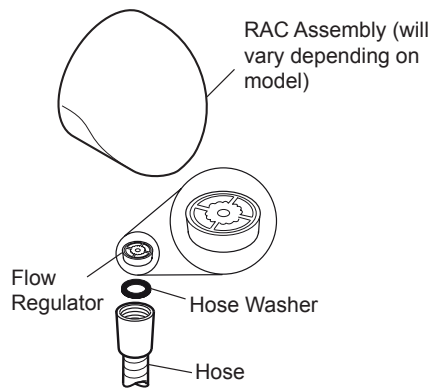
Rada V10 Exposed



Note! A 6 l/min and 9 l/min flow regulator is supplied separately in the component pack, designed to be fitted in the shower valve outlet.

Rada V10 Concealed

See Accessoires Page 27.



Note! A 6 l/min and 9 l/min flow regulator is supplied separately in the component pack, designed to be fitted in the RAC.

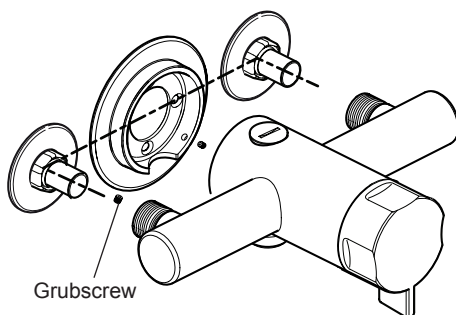
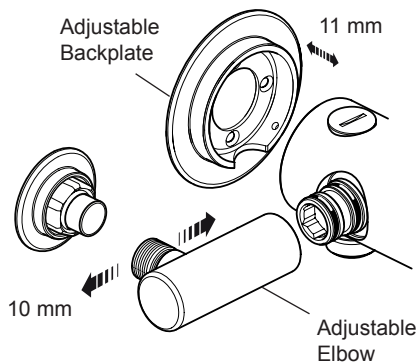
V10 Contract Pack (with Adjustable Elbows)

The adjustable elbows each have adjustment of 10 mm, allowing your thermostatic mixer to be connected to pipe centres ranging from 133 mm to 153 mm.

The adjustable backplate allows an additional 11 mm adjustment from the finished wall surface and should be fitted with the cutout to the underside of the valve.

Installation

1. Draw a centre line between the inlet pipework and, using the adjustable backplate as a template, mark the position of the adjustable backplate fixing holes.
2. For solid walls drill the holes for the backplate with a 6 mm drill and insert the wall plugs (supplied). For other types of wall structure alternative fixings may be required (not supplied).
3. Secure the backplate to the wall using the screws (supplied).
4. Align the mixer with the pipework and fit onto the backplate.
5. Tighten the compression nuts onto the mixer with a suitable spanner.
Caution! Take care not to damage the chrome surfaces.
6. Tighten the adjustable backplate grub screws with a 2 mm hexagonal key (supplied) to secure the mixer to the backplate.
7. Refer to the Thermostatic Mixer and Shower Fitting Installation and User Guide for further installation and commissioning procedures.

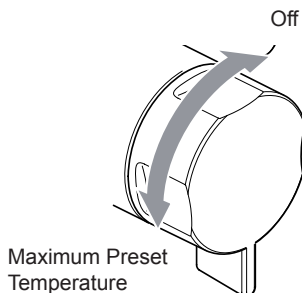


OPERATION

Rada V10 thermostatic mixers have a single sequential control lever for on/off and temperature control.

The control lever operates anti-clockwise in the following sequence: **Off - On - Cold - Warm - Maximum Preset Temperature**

Important! For TMV2 installations the mixed water temperature at the discharge point should never exceed 46°C.



COMMISSIONING

Maximum Temperature Setting

Before using the shower the maximum temperature must be checked to make sure that it is at a safe level. It has been preset to approximately 41°C at the factory but due to variations in site conditions the maximum temperature may need adjustment.

Note! Make sure that the hot water temperature is at least 55°C and that there is sufficient supply. For Type 2 installations the maximum blend temperature is determined by the application, refer to section: **'Type 2 Valves - Application'**.

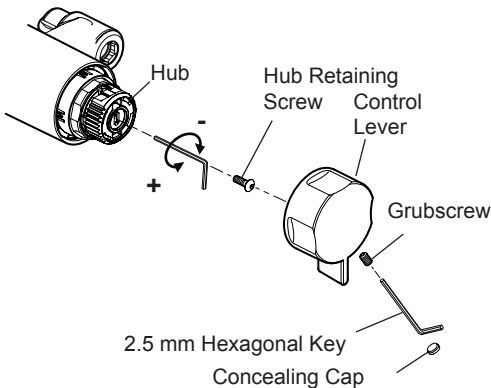
1. Turn on the mixer to the maximum temperature and maximum flow (i.e. fully anticlockwise) and allow the temperature to stabilise.

If the temperature is too hot or too cold adjust as follows.

2. Carefully remove the concealing cap from the control knob.
3. Loosen the control lever grubscrew with the 2.5 mm hexagonal key (supplied) and pull off the control lever.
4. unscrew the hub retaining screw with a 2.5 mm hexagonal key.

Note! Do not remove the hub.

5. Insert the 2.5 mm hexagon key into the centre of the spindle and engage with the exposed mounted temperature adjusting screw.
 6. Rotate the hexagon key until the required maximum temperature is obtained at the shower. Anticlockwise to increase the temperature, or clockwise to decrease the temperature (¼ turn = approximately 1°C).
 7. Once the desired maximum blend temperature has been achieved turn off the mixer by rotating either the hub or flow control lever (depending on model) fully clockwise.
- Note!** Do not remove the hub.
8. Refit the hub retaining screw.
 9. Refit the control lever with the lever at the top and retighten the grubscrew.
 10. Check that the shower temperature is correct.



TYPE 2 VALVES

Application

Key: High Pressure (HP) Low Pressure (LP)

The approved designations for Type 2 Valves are as follows:

Models	Designation
Rada V10	LP-S, HP-S

Important! The fitting of any flow regulator will invalidate TMV2 compliance due to the minimum flow rate requirements. Do not fit flow regulators in TMV2 applications.

The permitted application details are:

Designation	Operating Pressure Range	Application	Mixed Water Temp
LP-S	Low Pressure	Shower	41°C Max
HP-S	High Pressure	Shower	41°C Max

Important! For TMV2 installations the mixed water temperature at the discharge point should never exceed 46°C.

In order to achieve the safe water temperatures expected of a Type 2 Valve it is essential that the valve is used only for the applications covered by its approved designations, with the appropriate water supply pressures and temperatures, and it is commissioned, maintained and serviced in accordance with the recommendations contained in this guide (refer to the section '**Maintenance, In-Service Tests**' for in service test frequency that must be used as a minimum guide in Type 2 installations).

Supply Conditions

For applications where a Type 2 Valve is required, the supply conditions must comply with the values extracted from the TMV2 standard (EN1287 & EN1111), shown in the Table below. Note that both hot and cold supply pressures must lie within the same pressure range.

Operating Pressure Range	High Pressure	Low Pressure
Maximum Static Pressure (bar)	10	10
Flow Pressure, Hot and Cold (bar)	0.5 to 5	0.1 to 1
Hot Supply Temperature (°C)	55 to 65	55 to 65
Cold Supply Temperature (°C)	≤25°C	≤25°C

Note! Valves operating outside these conditions cannot be guaranteed to operate as Type 2 Valves.

Recommended Outlet Temperatures

The BuildCert TMV scheme recommends the following set maximum mixed water outlet temperatures for use in all premises:

44°C for bath fill, but see notes below;

41°C for showers;

41°C for washbasins;

38°C for bidets.

Important! For TMV2 installations the mixed water temperature at the discharge point should never exceed 46°C.

The maximum mixed water temperature can be 2°C above the recommended maximum set outlet temperatures.

Note! 46°C is the maximum mixed water temperature from the bath tap. The maximum temperature takes account of the allowable temperature tolerances inherent in thermostatic mixing valves and temperature losses in metal baths. **It is not a safe bathing temperature for adults or children.**

The British Burns Association recommends 37 to 37.5°C as a comfortable bathing temperature for children. In premises covered by the Care Standards Act 2000, the maximum mixed water outlet temperature is 43°C.

Commissioning notes for Thermostatic Mixing Valves

The first step in commissioning a thermostatic mixing valve is to check the following:

The designation of the thermostatic mixing valve matches the application, refer to section: **Type 2 Valves, Application.**

The supply pressures are within the valves operating range.

The supply temperatures are within the valves operating value.

The fitting of isolation valves is required as close as practicable to the water supply inlets of the thermostatic mixing valve.

The fitting of strainers is recommended as close as is practicable to the water supply inlets of the thermostatic mixing valve.

If all of these conditions are met, proceed to set the temperature as specified in section: **'Commissioning'**.

It is a requirement that all TMV2 approved valves shall be verified against the original set temperature results once a year. When commissioning/testing is due the following performance checks shall be carried out.

Measure the mixed water temperature at the outlet.

Carry out the cold water supply isolation test by isolating the cold water to the TMV, wait for five seconds if water is still flowing check that the temperature is below 46°C.

If there is no significant change to the set outlet temperature ($\pm 2^\circ\text{C}$ or less change from the original settings) and the fail-safe shut off is functioning, then the valve is working correctly and no further service work is required.

Notes! If there is a residual flow during the commissioning of the valve or the annual verification (cold water supply isolation test), then this is acceptable providing the temperature of the water seeping from the valve is no more than 2°C above the designated maximum mixed water outlet temperature setting of the valve.

Temperature readings should be taken at the normal flow rate after allowing for the system to stabilise.

The sensing part of the thermometer probe must be fully submerged in the water that is to be tested.

Any TMV that has been adjusted or serviced must be re-commissioned and re-tested in accordance with the instructions given in this guide.

The installation of thermostatic mixing valves must comply with the requirements of the Water Supply (Water Fittings) Regulations 1999.

MAINTENANCE

If you require a Rada trained service engineer or agent, refer to section: '**Customer Services**'.

Fault Diagnosis

Symptom:

- Only hot or cold water from the mixer outlet.
- Outlet temperature too hot / too cold.

Cause Rectification:

- Inlets reversed (hot supply to cold supply). Refer to section: '**Reversed Inlet Supplies**'.
 - No hot water reaching mixer.
 - Check the filters for any blockage.
 - Installation conditions outside operating parameters, refer to sections: '**Specifications**' and '**Commissioning**'.
-

Symptom:

- Fluctuating or reduced flow rate.

Cause Rectification:

- Check the showerhead, hose and filters for any blockage.
 - Make sure that the maintained inlet pressures are nominally balanced and sufficient, refer to section: '**Specifications**'.
 - Make sure that the inlet temperature differentials are sufficient, refer to section: '**Specifications**'.
 - Air lock or partial blockage in the pipework.
 - Flow regulator fitted incorrectly.
 - Low flow causing combination boiler to cycle. Operate at preset maximum flow.
-

Symptom:

- Water leaking from the showerhead.

Cause Rectification:

- Normal for a short period after shut off.
- Check that the pressures are not in excess of the specifications for the product.
- Renew the thermostatic cartridge.

Lubricants

Silicone based lubricants must only be used on the rubber seals.

Caution! Oil based or other lubricant types may cause rapid deterioration of seals.

Cleaning

The chrome plated parts should be cleaned using a mild washing up detergent or soap solution, rinsed and then wiped dry with a soft cloth.

Warning! Many household cleaners contain abrasive and chemical substances, and should not be used for cleaning plated or plastic fittings.

Do not use descalents on this product.

In-service Tests

The principal means for determining the continuing satisfactory performance of the mixing valve is the in-service test.

Frequency of In-service Tests - Commercial (non-domestic installations)

Check for correct blend setting every 6 months. Follow the procedure detailed in the flow diagram "In-service Test Procedure", every 12 months.

Routine Maintenance

The only maintenance required is a periodic check of the inlet filters and de-scaling of the shower head.

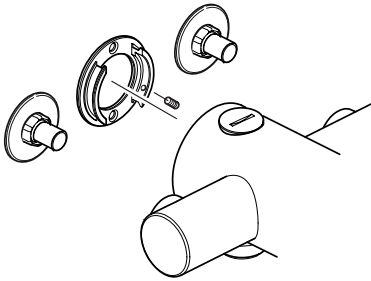
Filter Cleaning/Change

Exposed Mounted Models

The filters are fitted in the inlet elbows and it will be necessary to remove the valve off the wall to access these filters:

1. Turn off the hot and cold water supplies to the valve.
2. Disconnect the outlet shower fittings (unscrew the flexible hose and retain the sealing washer or if rigid riser fitted, unscrew the compression joint).
3. Using the 2.5 mm hexagonal key, loosen the grub screw retaining the valve on to the backplate.

4. Unscrew the inlet compression nuts on the hot and cold inlets, taking care not to damage the chrome finish.



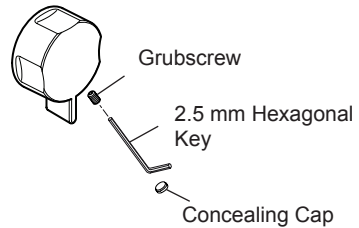
5. Carefully remove the valve off the inlet pipework and backplate.
6. Remove the filters from the inlets and flush out any debris with clean water.
Note! If the filter is damaged it must be replaced.
7. Install the filters and reconnect the valve and fittings (reverse of the above procedure).
8. Turn on the water supplies and check for any leaks.

Concealed Models

The filters are fitted in the inlet elbows which are accessed by removing the concealing plate:

1. Turn off the hot and cold water supplies to the valve.
2. Carefully remove the concealing cap from the control lever.
3. Loosen the control lever grubscrew with the 2.5 mm hexagon key (supplied) and pull off the control lever.
Note! The control lever must be in the off position in order to remove it.
4. Unclip the concealing plate from the backplate.
5. Using a 12 mm hexagonal key or 'O' key unscrew the filter caps.
Note! Care should be taken to ensure any residue water does not enter the wall.
6. Remove the filters and flush out any debris with clean water.
Note! If the filter is damaged it must be replaced.
7. Install the filters and cap.
8. Turn on the water supplies and check for leaks

9. Clip the concealing plate onto the backplate.
10. Push on the control lever and install the grubscrew using the 2.5 mm hexagon key (supplied).



11. Install the concealing cap onto the control lever.

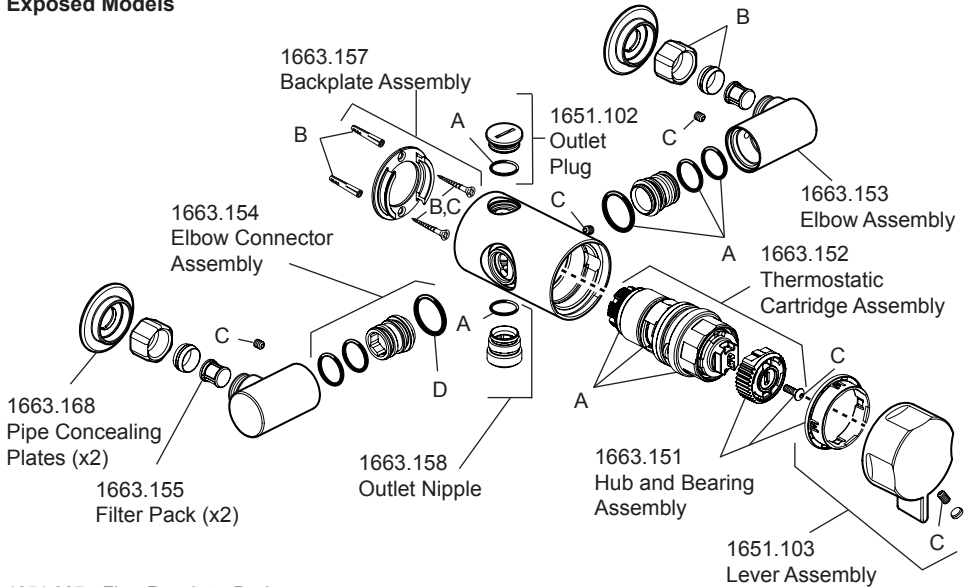
Models With Adjustable Elbows

Follow the procedure for the Exposed models and remove the valve from the wall.

1. Using a 12 mm hexagonal key or 'O' key, unscrew the inlet connector and retain the 'O' seal.
2. Remove and clean the filters with clean water.
Note! If the filter is damaged it must be replaced.
3. Replace the filters.
4. Install the 'O' seal connector and screw into the elbow.

SPARE PARTS

Exposed Models

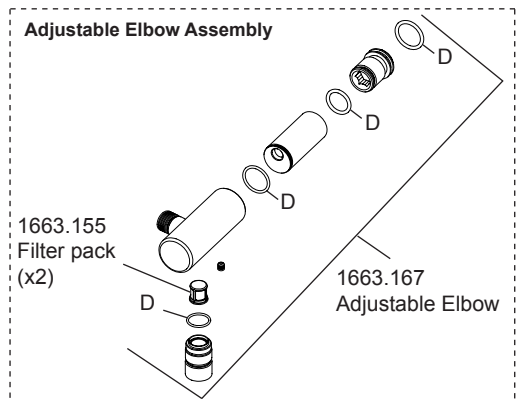


- 1651.087 Flow Regulator Pack
- 1651.102 Outlet Plug
- 1651.103 Lever Assembly
- 1663.151 Hub and Bearing Assembly
- 1663.152 Thermostatic Assembly
- 1663.153 Elbow Assembly
- 1663.154 Elbow Connector Assembly
- 1663.155 Filter Pack
- 1663.157 Backplate Assembly
- 1663.158 Outlet Nipple
- 1663.159 Seal Pack - components identified 'A'
- 1663.161 Component Pack - components identified 'B'
- 1663.162 Screw Pack - components identified 'C'
- 1663.168 Pipe Concealing Plate

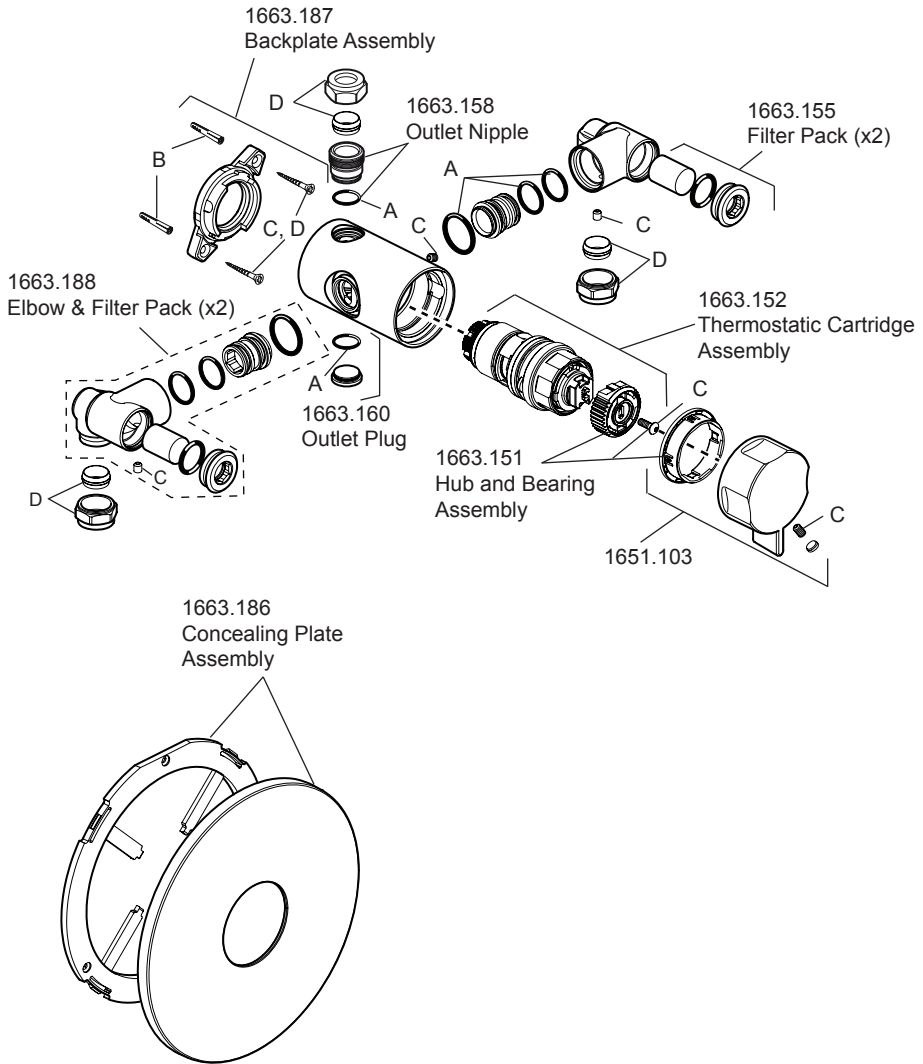
Adjustable Elbow V10 Contract

- 1663.335 Seal Pack - components identified 'D'
- 1663.167 Adjustable Elbow Assembly

Note! All spare parts supplied individually unless stated otherwise.



Concealed Models

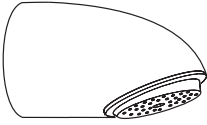


- 1663.159 Seal Pack - components identified 'A'
- 1663.161 Component Pack - components identified 'B'
- 1663.162 Screw Pack - components identified 'C'
- 1663.189 Component Pack - components identified 'D'

Note! All spare parts supplied individually unless stated otherwise.

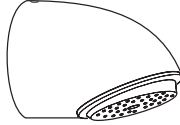
ACCESSORIES

Genuine Mira accessories can be purchased direct from Customers Services (our contact details can be found on the back cover of this guide) or from approved stockists or merchants.



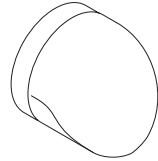
VR145 Vandal Resistant Showerhead 1.0.098.79.1

With fixed spray plate (spray angle can be set at 18.5° or 24.5° from vertical). For connection to rising Exposed pipework.



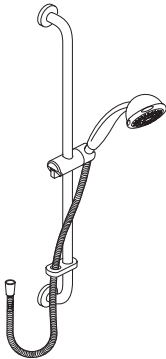
VR105 Vandal Resistant Showerhead 1.0.098.77.1

With fixed spray plate (spray angle can be set at 18.5° or 24.5° from vertical). For connection to concealed shower valve.



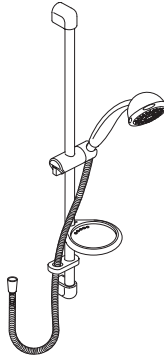
The Rada Right Angle Connector 1.1642.014

Right Angle Connector suitable for use with the Rada V10 Concealed shower valve.



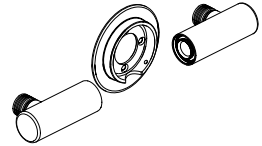
Rada Heavy Duty Shower Fittings 2.1642.002

Robust grab rail shower kit, 1.25 m flexible hose, clamp bracket assembly, hose retaining ring and adjustable spray handset. Available in chrome finish. Suitable for connection to Exposed shower controls.



Rada EV Shower Fittings 2.1642.001

Shower rail shower kit, 1.25 m flexible hose, clamp bracket assembly, slide bar, end supports, soap dish, hose retaining ring and adjustable spray handset. Available in chrome finish. Suitable for connection to Exposed shower controls.



Adjustable Elbow Pack Chrome - 1.1663.012

The Mira Adjustable Elbow Pack allows the Mira 'mini valves' to be retrofitted in place of an existing shower - no need to re-plumb or re-tile.



Rada Rigid Riser 1.1651.020

15mm Cranked Riser Pipe for use with Rada V10 Exposed shower valve (stainless steel finish).

CUSTOMER SERVICE

Guarantee of Quality

Rada products have the benefit of our one year manufacturer's guarantee which starts from the date of purchase.

Within the guarantee period we will resolve defects in materials or workmanship, free of charge, by repairing or replacing parts or product as we may choose.

This guarantee is subject to the following conditions:

- The product must be installed and maintained in accordance with the instructions given in this guide.
- Repair work must only be undertaken by us or our approved agent. **Note!** If a service visit is required the product must be fully installed and connected to services.
- Repair under this guarantee does not extend the original expiry date. The guarantee on any replacement parts or product ends at the original expiry date.
- For shower fittings or consumable items we reserve the right to supply replacement parts only.

The guarantee does not cover:

- Call out charges for non product faults (such as damage or performance issues arising from incorrect installation, improper use, lack of maintenance, build up of limescale, frost damage, corrosion, system debris or blocked filters) or where no fault has been found with the product.
- Water or electrical supply, waste and isolation issues.
- Compensation for loss of use of the product or consequential loss of any kind.
- Damage or defects caused if the product is repaired or modified by persons not authorised by us or our appointed representative.
- Routine maintenance or replacement parts to comply with regulatory requirements.

What to do if something goes wrong

If your product does not function correctly when you first use it, contact your installer to check that it is installed and commissioned in accordance with the instructions in this manual.

Should this not resolve the issue, contact us and we will offer you or your installer advice.

If the performance of your product declines, check within this manual to see if maintenance is required. Contact us if you require further assistance.

Rada Customer Service

Technical Helpdesk Service

Our dedicated Customer Services Team is comprehensively trained and can offer help and advice, spare parts, accessories or a service visit.

We will need you to have your model name or number and date of purchase.

As part of our quality and training programme calls may be recorded or monitored.

Spares and Accessories

We maintain extensive stocks of genuine spares and accessories and aim to provide support throughout the products life.

Payment can be made by phone at time of order using most major Credit or Debit cards and we aim to despatch orders within two working days. Items purchased from us are guaranteed for 12 months from date of purchase.

For safety reasons spares exposed to mains voltages should only be fitted by competent persons.

Returns – items can be returned within one month of date of purchase, providing that they are in good condition and the packaging is unopened. Please obtain authorisation from our Customer Services Team before return. We reserve the right to apply a 15% restocking charge.

Service / Repairs

We have a nationwide team of fully trained and approved Service Technicians who can carry out all service or repair work both within the guarantee period and beyond.

You have the assurance of a fully trained Technician, genuine Rada spare parts and a 12 month guarantee on any chargeable work done.

Service Contracts

A regular service ensures your product continues to perform at the peak of performance. We offer yearly or bi-annual servicing carried out by our full trained technicians subject to site survey.

Contact us for more details.

Rada Controls,
Cromwell Road,
Cheltenham,
Gloucestershire,
GL52 5EP

Customer Service & Specification Enquiries

Telephone: 0844 571 1777

Mon to Fri 8:30 am - 5:00 pm

E-mail: rada_technical@mirashowers.com

Fax: 01242 282595

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